II. REMARKS/ARGUMENTS

A. Regarding the Amendments

Claims 1-24 have been cancelled in view of the Examiner's earlier restriction requirement. Applicants retain the right to present claims 1-24 or equivalents thereof in a divisional or later filed application.

Claims 25 and 40 have been amended to recite that "the humoral immune response includes destruction of the cariogenic organism" and that it is the "portion of the constant region" of the monoclonal antibody that triggers "an effect of the humoral immune response".

Support can be found, *inter alia,* at page 3, lines 18-25 and page 4, lines 1-2 and 3-18 in the specification. No new matter is added by the amendments. Entering of the amendments is respectfully requested.

Applicants wish to draw the Examiner's attention to amendments to the drawings and specification, including the Sequence Listing, submitted on March 13, 2003. An indication of the Examiner's approval of the proposed drawing correction and entering of the amendments is respectfully requested.

B. Provisional Double Patenting

Claims 25, 35, and 37-38 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1, 4, 7, 10, 12 and 17 of copending Application No. 09/378,577. Applicants will not comment on the merit of this provisional rejection and reserve the right to respond to this provisional rejection if any of the claims at issue in the copending Application No. 09/378,577 has been allowed.

C. Withdrawl of Prior Art Rejections

Applicants respectfully acknowledge that it has been concluded in the Office Action that the present invention is not obvious over the disclosure of cited prior art and all rejections under 35 U.S.C. §103 are withdrawn.

D. Rejections under 35 U.S.C. §112, first paragraph

Claims 25-53 are rejected as allegedly containing new subject matter and failing to comply with the enablement requirement. This rejection is respectfully traversed.

The New Matter Rejection

The Office Action states that the phrase of "wherein the portion of the monoclonal antibody that triggers the humoral immune response is from the same species as the subject" does not appear in the specification or original claims as filed. Applicants respectfully submit that claim amendments rephrasing a passage disclosed in the specification or reciting a function, property, or operational theory inherent of what is disclosed in the specification does not constitute introduction of new matter. See also MPEP 2163.07. In particular, applicants respectfully point out that at page 3, lines 18-25 and page 4, lines 1-2 the specification discloses that unlike IgA antibodies, antibodies of the IgG and IgM classes have bacteriocidal effects which causes destruction of bacterial cells by either of two mechanisms: complement mediated cell lysis and antibody-dependent cell-mediated cytotoxicity, both of which are part of the humoral immune response and are known to be triggered by antibody constant regions. In addition, at page 4, lines 3-18 the specification discloses that monoclonal antibodies to cariogenic organisms must be recognized by the human immune system and should be humanized in order to elicit the desired cytotoxic effect of antibody binding in human. Therefore the phrase of "wherein the portion of the monoclonal antibody that triggers the humoral immune response is from the same species as the subject" merely rephrases what has already been disclosed in the specification and recites functions and/or properties that are inherent of what has been taught in the specification. Therefore, the phrase does not constitute new matter. Withdrawal of the rejection is respectfully requested.

The Enablement Rejection

The Office Action seems to suggest that "the trigger for any humoral immune response is the interaction of the antigen with B cells" and therefore the chimeric antibodies of the instant invention, by definition, cannot trigger a humoral immune response to an antigen of the cariogenic organism. Applicants respectfully submit that a humoral immune response to an antigen can also be triggered by the constant region of an antibody to the antigen, *e.g.*, the constant region of the antibody can trigger opsonization and complement activation, both of

which are part of a humoral immune response to the antigen. See also Charles A. Janeway et al., Immunobiology: The Immune System in Health and Disease (4th ed., 1999), Cpt. 9, pp. 308, Current Biology Publications, London, UK. A copy of which is attached as Exhibit A.

In order to avoid any confusion, applicants have amended the claims to recite that it is the constant region of the monoclonal antibody that triggers an effect of the humoral immune response and such region is from the same species of the treated subject.

Furthermore, applicants respectfully submit a summary report of experimental data demonstrating that examples of claimed chimeric antibodies, *i.e.*, humanized mouse SWLA antibodies can bind to Fc receptors on human lymphocytes and trigger destructive effects of humoral immune response using immune components from human saliva. Specifically Exhibit B shows that the binding constant between humanized mouse antibodies (SWLA1, SWLA2, and SWLA3) and Fc receptors on human lymphocytes is four magnitudes higher than the binding constant between standard non-humanized mouse IgG antibodies and Fc receptors on human lymphocytes. The data further demonstrate that non-humanized mouse antibodies, SWLA1, SWLA2, and SWLA3, are not capable of using concentrated immune components (complements, neutrophils and other lymphocytes) from human saliva whereas their corresponding humanized antibodies, SWLA1-H, SWLA2-H, and SWLA3-H are capable of triggering a humoral immune response including killing of cariogenic organism, *S. mutans*, by utilizing concentrated immune components from human saliva.

Applicants respectfully point out that such experimental data also provide additional support for the Examiner's conclusion that the present invention is not obvious over cited prior art. Specifically Ma and Shi disclose a non-humanized standard mouse IgG antibody against *S. mutans*, which according to the experimental data presented in Exhibit B, will not be able to effectively bind to Fc receptors of human lymphocytes and nor will it be able to trigger a destructive effect of humoral immune response using immune components from human saliva. Ma further teaches away from the present invention by suggesting that the constant region of the mouse IgG antibody is irrelevant and should be replaced with the constant region of IgA, which helps to increase bacteria clumping, but is known to be non-effective in triggering a humoral immune response including killing of cariogenic organisms. Therefore, the experimental data submitted herein further demonstrate the novelty and uniqueness of the

approaches taken by the present invention, which set the present invention apart from the disclosures of the cited prior art.

In view of the amendment and the above remarks, it is submitted that the claims are in condition for allowance and a notice to that effect is respectfully requested. The Examiner is invited to contact Applicants' undersigned representative if there are any questions relating to this application.

Respectfully Submitted,
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